

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP99/04653

A. CLASSIFICATION OF SUBJECT MATTER
Int.Cl⁶ C12P 7/64 // (C12P 7/64, C12R 1:645)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
Int.Cl⁶ C12P 7/64

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
REGISTRY (STN), CA (STN)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
<u>X</u> A	LI, ZU-YI. et al. "Process for production of arachidonic acid concentrate by a strain of Mortierella alpina", Can. J. Chem. Eng. (1995), Vol. 73, No. 1, pages 135-139	<u>11-12, 17-20</u> 1-10, 13-16
<u>X</u> A	JP, 2-142486, A1 (LION CORPORATION), 31 May, 1990 (31.05.90) (Family: none)	<u>11-12, 17-20</u> 1-10, 13-16
<u>X</u> A	TOTANI, N. et al. "Industrial production of arachidonic acid by Mortierella", Ind. Appl. Single Cell Oils (KYLE, D. J. edit. AOCs Champaign) (1992), pages 52-60	<u>11-12, 17-20</u> 1-10, 13-16
<u>X</u> A	WO, 96/21037, A1 (MARTEK BIOSCIENCES CORP.), 11 July, 1996 (11.07.96) & AU, 9648542, A & US, 5658767, A & EP, 800584, A1 & NO, 9703085, A & FI, 9702829, A & BR, 9607179, A & MX, 9705078, A1 & JP, 10-512444, W & KR, 98701036, A	<u>17-19</u> 1-16, 20

☒ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier document but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search
30 November, 1999 (30.11.99)

Date of mailing of the international search report
07 December, 1999 (07.12.99)

name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Telephone No.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP99/04653

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
<u>P, X</u> P, A	WO, 98/39468, A1 (SUNTORY LIMITED), 11 September, 1998 (11.09.98)	<u>17-18</u> 1-16, 19-20
<u>P, X</u> P, A	SHIMADA, Y. et al. "Enzymatic enrichment of arachidonic acid from Mortierella single-cell oil", J. Am. Oil Chem. Soc. (September, 1998), Vol. 75, No. 9, pages 1213-1217	<u>11-12, 17-20</u> 1-10, 13-16
<u>Y</u> A	SHIMADA, Y. et al. "Enrichment of arachidonic acid: Selective hydrolysis of a single-cell oil from Mortierella With Candida cylindracea lipase", J. Am. Oil Chem. Soc. (1995), Vol. 72, No. 11, pages 1323-1327	<u>11-12, 17-20</u> 1-10, 13-16
A	LINDBERG, A. M. et al. "Effect of temperature and glucose supply on the production of polyunsaturated fatty acids by the fungus Mortierella alpina CBS 343.66 in fermenter cultures", Appl. Microbiol. Biotechnol. (1993), Vol. 39, No. 4-5, pages 450-455	1-20
A	JP, 8-214893 (OMEGATECH INC.), 27 August, 1996 (27.08.96), & EP, 726321, A2 & AU, 9537991, A & CA, 2163278, A & US, 5583019, A & US, 5882703, A	1-20